

Appl. No. 10/583,587
Amdt. Dated March 2, 2009
Reply to Office Action of September 2, 2008

• • • R E M A R K S / A R G U M E N T S • • •

The Official Action of September 2, 2009 has been thoroughly studied. Accordingly, the following remarks are believed to be sufficient to place the application into condition for allowance.

Claims 1-18 are pending in this application.

Claims 1-6 and 8-18 stand rejected under 35 U.S.C. 103(a) as being unpatentable over George et al, U.S. 5,977,250 alone, further in view of or Escalona et al., U.S. 5,536,419; Marchessault et al U.S. 5,454,456; Ramsay et al, U.S. 5,110,980; or/and Holmes et al U.S.4,910,145.

On page 12 of the Official Action the Examiner has objected to claim 7 as being dependent upon a rejected base claim, but has indicated that claim 7 would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

For the reasons set forth below it is submitted that all of the claims are allowable over the prior art of record and therefore, the outstanding prior art rejection of the claims should properly be withdrawn.

Favorable reconsideration by the Examiner is earnestly solicited.

Applicant's independent claim 1 requires the following steps:

- a) physically pretreating a fermentation liquid containing cells to cause the walls of the cells to break;

Appl. No. 10/583,587

Amdt. Dated March 2, 2009

Reply to Office Action of September 2, 2008

- b) adjusting the pH value of the pretreated fermentation liquid from step a) to an alkaline condition;
- c) adding anionic surfactant to the solution of step b) and subjecting the solution to agitation;
- d) separating and extracting coagulated precipitate from the solution in step c); and
- e) washing and drying the coagulated precipitate.

George et al. discloses a process for producing PHA that involves the following steps:

- 1) mechanically breaking the cell walls; and
- 2) digesting NPCM with an oxidant or enzyme;
- 3) separating PHA from NPCM in the presence of a surfactant.

By comparing applicant's claimed method with the George et al. process, it is clear that the difference lies in the combination of steps b) and c) as well as the omission of digesting NPCM with an oxidant or enzyme in applicant's claimed method.

In the present invention, the digestion of NPCM is achieved by the combination of steps b) and c) instead of with an oxidant or enzyme.

The examiner alleges the claimed method is obvious over George et al. alone because George et al. discloses "keeping the suspension with 2 pH units of neutrality" which seems similar to step b) and "adding an anionic surfactant" which seems similar to step c).

Appl. No. 10/583,587
Amdt. Dated March 2, 2009
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But the functions of "keeping the suspension with 2 pH units of neutrality" and "adding an anionic surfactant" are taught by George et al. are to avoid crystallization in a PHA latex and to stabilize a PHA latex respectively.

In this regard at column 5, lines 30-37 George et al. teaches:

Further precautions desirable for avoidance of crystallisation include keeping the suspension at a low ionic strength, keeping the suspension aseptic, not using hypochlorite and keeping the suspension within 2 pH units of neutrality. To keep down the ionic strength the production of the biomass is preferably in chemostat conditions maintaining the pH by addition of alkali in response to electrochemical measurement.

Further, at column 3, lines 25-35 George et al. teaches:

The stabilising quantity of surfactant is typically in the range 0.25 to 10, especially 1 to 7% w/w on PHA dry solids. This is or includes surfactant in the latex after all steps of NPCM removal have been complete, including the final step of removing soluble NPCM decomposition products and unadsorbed surfactant. Thus it may correspond to a monolayer on the surface of the PHA particles, so far as this can be inferred from the sizes and shapes of the particles. Typically this quantity is the residue after washing of the surfactant used in a process according to the fourth aspect of the invention.

Thus, the steps of "keeping the suspension with 2 pH units of neutrality" and "adding an anionic surfactant" are taught by George et al completely different from steps b) and c) in of applicant's claimed present invention.

Therefore, applicant's claimed invention is not obvious over George et al. alone.

Appl. No. 10/583,587
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The Examiner has further alleged that applicant's claimed method is obvious over the combination of George et al. and Ramsay et al. because Ramsay et al. teaches that "increasing the pH value" contributes to the recovery of PHA which seems similar to applicant's step b).

However, Ramsay et al. teaches that such a contribution is based on the combination of "increasing the pH value" and "hypochlorite treatment."

In this regard, at column 5, lines 10-19 Ramsay et al. teaches:

Hypochlorite solutions were prepared according to the method of Williamson and Wilkinson (see above). After adding the PHA-containing biomass to the hypochlorite solution, PHA was separated from the aqueous portion (containing residual biomass) by centrifugation at 4000.times.g for 15 min. The PHA was rinsed with water, recentrifuged and 5 volumes of acetone was added to it. Granules of PHA were recovered by filtration

As can be appreciated the combination of "increasing the pH value" and "hypochlorite treatment" taught by Ramsay et al' is also different from the combination of applicant's steps b) and c).

Therefore, applicant's claim invention is not obvious over the combination of George et al and Ramsey et al.

Overall, it is submitted that the combination of applicant's steps b) and c) is not disclosed in any of the cited prior art references.

Therefore, independent claim 1 is not obvious over George et al. taken alone, or in further combination with any of Escalona et al., Marchessault et al., Ramsay et al, and/or Holmes et al.

Appl. No. 10/583,587
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Based upon the above distinctions between the prior art relied upon by the Examiner and the present invention, and the overall teachings of prior art, properly considered as a whole, it is respectfully submitted that the Examiner cannot rely upon the prior art as required under 35 U.S.C. §103 to establish a prima facie case of obviousness of applicant's claimed invention.

It is, therefore, submitted that any reliance upon prior art would be improper inasmuch as the prior art does not remotely anticipate, teach, suggest or render obvious the present invention.

It is submitted that the claims, as now amended, and the discussion contained herein clearly show that the claimed invention is novel and neither anticipated nor obvious over the teachings of the prior art and the outstanding rejection of the claims should hence be withdrawn.

Therefore, reconsideration and withdrawal of the outstanding rejection of the claims and an early allowance of the claims is believed to be in order.

It is believed that the above represents a complete response to the Official Action and reconsideration is requested.

If upon consideration of the above, the Examiner should feel that there remain outstanding issues in the present application that could be resolved, the Examiner is invited to contact applicant's patent counsel at the telephone number given below to discuss such issues.

To the extent necessary, a petition for an extension of time under 37 CFR §1.136 is hereby made. Please charge the fees due in connection with the filing of this paper, including extension of

Appl. No. 10/583,587
Amdt. Dated March 2, 2009
Reply to Office Action of September 2, 2008

time fees, to Deposit Account No. 12-2136 and please credit any excess fees to such deposit account.

Respectfully submitted,



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